

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
:
McCormick et al. : Patent Art Unit: TBA
:
Division of Serial No. 09/522,900 : Examiner: TBA
:
Filed: 30 January 2002 :
:
For: Self Antigen Vaccines for Treating B Cell :
Lymphomas and Other Cancers :

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to prosecution on the merits, kindly amend the application as follows:

IN THE SPECIFICATION

Kindly amend the specification as follows:

Page 10, line 9, before "though" insert --SEQ ID NO:59--.

Page 29, line 22, following "cg" insert – SEQ ID NO:60--.

Page 37, line 11, following “ ’5” insert – SEQ ID NO:61--; and

line 23, following “ ’5” insert – SEQ ID NO:62--.

IN THE CLAIMS:

Kindly amend claims 24, 30 and 31 as follows.

24. An individual-specific immunogenic product comprising a polypeptide that binds specifically to an idiotope produced by a method comprising the steps of:

- (a) joining a nucleic acid encoding the first domain of the polypeptide to a nucleic acid encoding a first part of a linker to produce a first nucleic acid construct;
- (b) joining the nucleic acid encoding a second part of the linker to a nucleic acid encoding the second domain of the polypeptide to produce a second nucleic acid construct;
- (c) incorporating said first and said second constructs into a transient plant expression vector in frame so that, when expressed, the polypeptide bears the first and second domain separated by the linker;
- (d) transfecting a plant with the vector so that the plant transiently produces the polypeptide; and
- (e) recovering the polypeptide as a soluble, correctly-folded protein.

30. A vaccine composition that induces an idiotype-specific anti-lymphoma immune response, comprising:

(A) a polypeptide self-antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, which polypeptide:

- (a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;
- (b) is produced in a cell or organism that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;
- (c) is obtainable from said cell or organism in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and

- (d) is capable of inducing an immune response in a mammal, including said subject, without a need for adjuvant or other immunostimulatory materials, so that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes; and
- (B) a pharmaceutically acceptable carrier or excipient.

31. A vaccine composition that induces a polyclonal immune response to at least one idiotype of an idiotype of a surface immunoglobulin of a B-cell lymphoma, comprising:

(A) a polypeptide self-antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, which polypeptide:

- (a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;
- (b) is produced in a cell or organism that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;
- (c) is obtainable from said cell or organism in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and
- (d) is capable of inducing an immune response in a mammal, including said subject, without a need for adjuvant or other immunostimulatory materials, so that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes; and
- (B) a pharmaceutically acceptable carrier or excipient.

Kindly add the following new claims:

-- 54. The vaccine composition of claim 30 or 31 wherein said polypeptide is a single chain antibody.

55. The vaccine composition of claim 54 wherein the V_H and V_L domains of said single chain antibody are linked by an amino acid linker that

- (a) has between about 1 and 50 residues;
- (b) consists of between 1 and 12 different amino acids; and
- (c) facilitates secretion and correct folding of said polypeptide to mimic the tumor epitope in its native form in or on said tumor cell.

56. The vaccine composition of claim 55 wherein said linker is a member of a randomized library of linkers that vary in size and sequence, and said library is encoded by nucleic acid sequences consisting of a repeated pattern of degenerate repeated triplet nucleotides having the following requirements:

- (a) position 1 of each repeated triplet cannot be the same nucleotide as position 2 of the repeated triplet;
- (b) position 2 of each repeated triplet cannot be the same nucleotide as position 3 of the repeated triplet; or
- (c) position 1 of each repeated triplet cannot be the same nucleotide as position 3 of the repeated triplet.

57. The vaccine composition of claim 56 wherein the nucleotide in the first and second positions of each repeated triplet is selected from any two of deoxyadenosine, deoxyguanosine, deoxycytidine or deoxythymidine.

58. The vaccine composition of claim 57 wherein

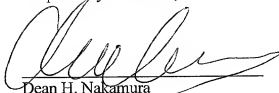
- (a) position one of each repeated triplet is deoxyadenosine or deoxyguanosine;
- (b) position two of each repeated triplet is deoxycytidine or deoxyguanosine; and
- (c) position three of each repeated triplet is deoxythymidine.--

REMARKS

The Examiner hereby is authorized to obtain the CRF of the Sequence Listing from the parent application for use herein. The content of the CRF is the same as that of the paper copy attached hereto, which also is the same as the paper copy filed in the parent application.

Favorable consideration and early indication of allowance are solicited earnestly.

Respectfully submitted,


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24. An individual-specific immunogenic product comprising [the] a polypeptide [of claim 13,] that specifically binds to an idiotope produced by a method comprising the steps of:

- (a) joining a nucleic acid encoding the first domain of the polypeptide to a nucleic acid encoding a first part of a linker to produce a first nucleic acid construct;
- (b) joining the nucleic acid encoding a second part of the linker to a nucleic acid encoding the second domain of the polypeptide to produce a second nucleic acid construct;
- (c) [incorporated] incorporating said first and said second constructs into a transient plant expression vector in frame so that, when expressed, the polypeptide bears the first and second domain separated by the linker;
- (d) transfecting a plant with the vector so that the plant transiently produces the polypeptide; and
- (e) recovering the polypeptide as a soluble, correctly-folded protein.

30. A vaccine composition [useful for inducing a] that induces an idiotype-specific anti-lymphoma immune response, comprising:

(A) a polypeptide self-antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, which polypeptide:

- (a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;
- (b) is produced in a cell or organism that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;
- (c) is obtainable from said cell or organism in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and
- (d) is capable of inducing an immune response in a mammal, including said subject, without a need for adjuvant or other immunostimulatory materials, so

that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes; and

- [(a) the polypeptide of any one of claims 3 or 11-16; and]
[(b)] (B) a pharmaceutically acceptable carrier or excipient.

31. A vaccine composition that induces a polyclonal immune response to at least one idiotype of an idiotype of a surface immunoglobulin of a B-cell lymphoma, comprising:

(A) a polypeptide self-antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, which polypeptide:

- (a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;
(b) is produced in a cell or organism that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;
(c) is obtainable from said cell or organism in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and
(d) is capable of inducing an immune response in a mammal, including said

subject, without a need for adjuvant or other immunostimulatory materials, so that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes; and

- [(a) the polypeptide of claim claims 5 or 11-16; and]
[(b)] (B) a pharmaceutically acceptable carrier or excipient.